

## **REMARKS**

This request for continued examination is filed following the Office Action dated September 18, 2002. Claims 34-54 remain in this application. Claims 34, 41, and 48 have been amended. The Applicants respectfully submit that each of claims 34-54 is in condition for allowance.

### *§ 103(a) rejection*

In paragraph 2 of the office action, the Examiner has rejected claims 34-54 under 35 USC § 103(a) as being unpatentable over **French** in view of both **Melnikoff** and **Ruffin et al.**

The claims have been amended to more clearly specify that for at least one possible future scenario at one or more future time steps in a simulation, one or more needed simulated instruments are generated and added to a simulated dynamic portfolio in producing a changed simulated dynamic portfolio, where each of the needed simulated instruments is generated in accordance with a generic model associated therewith, and where each of the needed simulated instruments is not an existing instrument at the time the simulation is executed. The Applicants respectfully submit that the claims, as amended, are patentable over the cited art for the reasons provided below.

In paragraph 2 of the office action (at pages 3-4), the Examiner suggests that while **French** does not disclose executing a simulation under possible future scenarios, doing so would be obvious because **Ruffin et al.** teaches that before a business endeavour is invested in, an informed decision regarding possible scenarios regarding outcome is desired.

The Applicants respectfully submit that it would not be obvious to persons of ordinary skill in the art how the teachings of **French** and **Ruffin et al.** might be combined to arrive at the present invention, and in particular how the systems and methods disclosed therein might be combined to execute simulations under possible future scenarios. More specifically, the Applicants contend that the methods in **French** could be applied by someone with little knowledge of finance. **French** does not disclose or teach the application of valuation procedures or of financial modeling knowledge. **French** merely requires the collection of prices from the market, the trading of instruments based on those prices, the comparison of new market prices to old market prices after time has elapsed to calculate returns, and the evaluation of the agents' performance based on those returns.

However, it is submitted that the technique in **French** cannot be applied in any obvious way to simulate the evolution of a portfolio under possible future scenarios. In such a simulation, means to value simulated instruments at future points in time based on appropriate models would be required. Cash flows for the simulated instruments would be generated, and means to settle cash flows and to keep track of them as they come due in simulated time would be required. Means to track certain events under possible

future scenarios such as the hypothetical exercising of options are required. While these issues are addressed by the invention as described in the present application and in the co-pending application referred to at page 5 therein and which is incorporated by reference, they are not addressed in any detail in **French, Melnikoff, or Ruffin et al.** It is submitted that **French** at best permits users to define limited evolution strategies akin to some other prior art systems, as described by the Applicants in the Background of the Invention (e.g. page 2, lines 5-13).

Furthermore, in performing a simulation under possible future scenarios where the composition of a simulated portfolio changes, in many circumstances, the instruments being dealt with do not actually exist at the time the simulation is performed (see. page 11, lines 8-22). For example, at least one rule could be used to implement a strategy where excess cash is rolled over into 3-month term deposits with one or more specified maturity dates. However, these specific term deposits do not actually exist yet, and thus a user cannot simply refer to them in the way that systems which perform real trades in real-time (e.g. **French**) do. Instead, these instruments must be simulated and generated as needed based on the simulated market conditions defined at a given future time step under a given possible future scenario in the simulation. In the present invention, generic models of such instruments are provided and used to generate the needed instruments in the simulation (page 8, lines 15-18).

To better clarify the invention, independent claims 34, 41, and 48 have been amended to clarify that for at least one possible future scenario at one or more future time steps in a simulation, one or more needed simulated instruments are generated and added to a simulated dynamic portfolio in producing a changed simulated dynamic portfolio, where each of the needed simulated instruments is generated in accordance with a generic model associated therewith, and where each of the needed simulated instruments is not an existing instrument at the time the simulation is executed. Support for this amendment can be found at page 11, lines 8-22 of the Applicants' description.

Several terms in the independent claims 34, 41 and 48 have also been amended to correct certain clerical errors, or reworded for clarity. No new matter has been introduced by these amendments.

Accordingly, the Applicants respectfully submit that independent claims 34, 41, and 48, as amended, are patentable and would not be obvious to a person skilled in the art in view of the cited art. It is further submitted that dependent claims 35-40, dependent claims 42-47, and dependent claims 49-54 which remain in the application and depend on amended independent claims 34, 41, and 48 respectfully are also patentable, for the reasons provided above with respect to the amended independent claims. Withdrawal of the Examiner's rejection is respectfully requested.

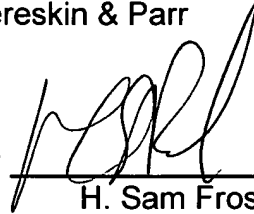
Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

All objections and rejections have been addressed. It is respectfully submitted, therefore, that the present application is now in position for allowance, and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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By

A handwritten signature in black ink, appearing to read 'H. Sam Frost', written over a horizontal line.

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the claims:**

Amend claim 34 as follows:

34. A method of determining the risk associated with a user's portfolio by simulating changes to the composition of a simulated dynamic portfolio under a plurality of possible future scenarios at a plurality of future time steps, ~~the user's portfolio comprising a plurality of instruments,~~ said method comprising the steps of

(a) generating a simulated dynamic portfolio, said simulated dynamic portfolio comprising a plurality of simulated instruments and having an initial composition that is ~~identical to~~ corresponds to the composition of the user's portfolio;

(b) defining at least one rule for use in a simulation in which changes to the composition of said simulated dynamic portfolio are to be simulated, wherein said defining step is performed prior to executing said simulation, and wherein said at least one rule is dependent on at least one tracking attribute, on at least one tracking position, and on at least one trade position;

(c) selecting one of said plurality of possible future scenarios under which said simulation is to be performed;

(d) executing a simulation under the possible future scenario selected in step (c) at said plurality of future time steps, wherein the current time step is initially the first time step of said plurality of future time steps, wherein the composition of the simulated dynamic portfolio at the first time step is set to the initial composition of the simulated dynamic portfolio as generated at step (a), and ~~wherein the step of executing said simulation comprises the following substeps to be~~ are performed ~~on the simulated dynamic portfolio generated at step (a):~~

i. valuing said simulated dynamic portfolio at the current time step of said plurality of future time steps, wherein a model for each simulated instrument in said simulated dynamic portfolio is evaluated;

ii. simulating changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one ~~tracked~~ tracking attribute at the current time step, and wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said changed simulated dynamic portfolio is produced;

iii. setting the current time step to the next time step of said plurality of future time steps and repeating substeps (i) and (ii);

iv. repeating substep (iii) until said simulated dynamic portfolio has been valued at all of said plurality of future time steps;

(e) repeating steps (c) and (d) for each remaining possible future scenario of said plurality of possible future scenarios; and

(f) producing an output risk metric, wherein said output risk metric is dependent on the composition of ~~one or more~~ the simulated dynamic portfolios ~~after step (d) is performed~~ under at least one of said plurality of possible future scenarios;

wherein for at least one simulation executed at step (d), the simulating substep performed therein requires generating one or more needed simulated instruments and adding said needed simulated instruments to the simulated dynamic portfolio in producing a changed simulated dynamic portfolio, wherein each of said needed simulated instruments is generated in accordance with a generic model associated therewith, and wherein each of said needed simulated instruments is not an existing instrument at the time said at least one simulation is executed.

Amend claim 41 as follows:

41. A simulated dynamic portfolio of instruments for use with a risk management system in a simulation, the composition of said simulated dynamic portfolio being changeable under a plurality of possible future scenarios at a plurality of future time steps, said simulated dynamic portfolio comprising:

(a) a holding structure indicating simulated instruments and their quantity in said simulated dynamic portfolio; and

(b) a strategy structure indicating a trade manager in which at least one rule for a trading strategy is defined, wherein said at least one rule is dependent on at least one tracking attribute, on at least one tracking position, and on at least one trade position, wherein said at least one rule is defined prior to executing said simulation;

~~and~~ wherein for each of said plurality of possible future scenarios at each of said plurality of future time steps, said at least one trade manager simulates changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one tracking attribute at the current time step, wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said changed simulated dynamic portfolio is produced, ~~and~~ wherein said changes to said simulated dynamic portfolio are reflected in said holding structure;

and wherein for at least one of said plurality of possible future scenarios at one or more future time steps, said trade manager generates one or more needed simulated instruments and adds said needed simulated instruments to the simulated dynamic portfolio in producing a changed simulated dynamic portfolio, wherein each of said needed simulated instruments is generated in accordance with a generic model associated therewith, and wherein each of said needed simulated instruments is not an existing instrument at the time said simulation is executed.

Amend claim 48 as follows:

48. A risk management system operable on a plurality of instruments, said system comprising:

(a) at least one risk engine adapted to determine a risk value for each simulated instrument of ~~said~~ a plurality of simulated instruments, said risk value determined by evaluating a model for said simulated instrument under one of a plurality of possible future scenarios;

(b) a database to store risk values of said plurality of simulated instruments;

(c) a simulated dynamic portfolio of simulated instruments, the composition of said simulated dynamic portfolio being changeable under said plurality of possible future scenarios at a plurality of future time steps, said simulated dynamic portfolio comprising a holding structure indicating simulated instruments and their quantity in said simulated dynamic portfolio and a strategy structure indicating a trade manager in which at least one rule for a trading strategy is defined, wherein said at least one rule is dependent on at least one tracking attribute, on at least one tracking position, and on at least one trade position, wherein said at least one rule is defined prior to executing said simulation, wherein for each of said plurality of possible future scenarios at each of said plurality of future time steps, said at least one trade manager simulates changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one tracking attribute at the current time step, wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said changed simulated dynamic portfolio is produced, ~~and~~ wherein said changes to said simulated dynamic portfolio are reflected in said holding structure, and wherein for at least one of said plurality of possible future scenarios at one or more future time steps, said trade manager generates one or more needed simulated instruments and adds said needed simulated instruments to the simulated dynamic portfolio in producing a changed simulated dynamic portfolio, wherein each of said needed simulated instruments is generated in accordance with a generic model associated therewith, and wherein each of said needed simulated instruments is not an existing instrument at the time said simulation is executed; and

(d) an aggregating engine adapted to retrieve said determined risk values to produce a risk metric dependent on the composition of ~~one or more~~ said simulated dynamic portfolio under at least one of said plurality of possible future scenarios.